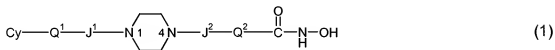


AMENDMENTS TO THE CLAIMS:

Please amend the claims as follows:

Claims 1-79. (Canceled).

80. (Currently Amended) A compound of the formula:



wherein:

the piperazin-1,4-diyl group is optionally substituted;

J¹ is independently a covalent bond or -C(=O)- ;

J² is independently -C(=O)- or -S(=O)₂- ;

wherein:

Cy is independently:

C₃₋₂₀carbocyclyl,

C₃₋₂₀heterocyclyl, or

C₅₋₂₀aryl;

and is optionally substituted;

Q¹ is independently:

a covalent bond;

C₁₋₇alkylene; or

C₁₋₇alkylene-X-C₁₋₇alkylene, -X-C₁₋₇alkylene, or C₁₋₇alkylene-X-,

wherein X is -O- or -S-;

and is optionally substituted;

Q² is independently:

C₄₋₈alkylene;

and is optionally substituted;

and has a backbone length of at least 4 atoms;

or:

Q² is independently:

C₅₋₂₀arylene-C₁₋₇alkylene;

C₁₋₇alkylene-C₅₋₂₀arylene; or,

C₁₋₇alkylene-C₅₋₂₀arylene-C₁₋₇alkylene;

and is optionally substituted;

and has a backbone length of at least 4 atoms;

or a pharmaceutically acceptable salt, ~~solvate~~, amide, ester, or ether thereof.

81. (Previously Presented) A compound according to claim 80, wherein the piperazin-1,4-diyl group is unsubstituted or substituted at one or more of the 2-, 3-, 5-, and 6-positions with C₁₋₄alkyl.

82. (Previously Presented) A compound according to claim 80, wherein: J¹ is a covalent bond; and J² is -C(=O)-.

83. (Previously Presented) A compound according to claim 80, wherein: J¹ is -C(=O)-; and J² is -C(=O)-.

84. (Previously Presented) A compound according to claim 80, wherein: J¹ is a covalent bond; and J² is -S(=O)₂-.

Claim 85. (Canceled)

Claim 86. (Canceled)

87. (Previously Presented) A compound according to claim 80, wherein Q¹ is independently C₁₋₇alkylene, and is optionally substituted.

88. (Previously Presented) A compound according to claim 80, wherein: Q¹ is independently C₁₋₇alkylene, and is optionally substituted; J¹ is independently a covalent bond; J² is independently -C(=O)-.

89. (Previously Presented) A compound according to claim 80, wherein: Q¹ is independently C₁₋₇alkylene, and is optionally substituted; J¹ is independently -C(=O)-; J² is independently -C(=O)-.

90. (Previously Presented) A compound according to claim 80, wherein: Q¹ is independently C₁₋₇alkylene, and is optionally substituted; J¹ is independently a covalent bond; J² is independently -S(=O)₂-.

91. (Previously Presented) A compound according to claim 80, wherein: Q¹ is independently C₁₋₇alkylene, and is optionally substituted; J¹ is independently -C(=O)-; J² is independently -S(=O)₂-.

92. (Previously Presented) A compound according to claim 80, wherein Q¹ is independently C₁₋₃alkylene, and is optionally substituted.

93. (Previously Presented) A compound according to claim 80, wherein Q¹ is independently : C₁₋₇alkylene-X-C₁₋₇alkylene, -X-C₁₋₇alkylene, or C₁₋₇alkylene-X-; wherein X is -O- or -S-; and is optionally substituted.

94. (Previously Presented) A compound according to claim 80, wherein Q¹ is independently :C₁₋₃alkylene-X-C₁₋₃alkylene, -X-C₁₋₃alkylene, or C₁₋₃alkylene-X-; wherein X is -O- or -S-; and is optionally substituted.

95. (Previously Presented) A compound according to claim 80, wherein substituents on Q¹, if present, are independently: halo, hydroxy, ether, C₈₋₂₀aryl, acyl, amino, amido, acylamido, or oxo.

96. (Previously Presented) A compound according to claim 80, wherein substituents on Q¹, if present, are independently: -F, -Cl, -Br, -I, -OH, -OMe, -OEt, -OPr, -Ph, -NH₂, -CONH₂, or =O.

97. (Previously Presented) A compound according to claim 80, wherein Q¹, if other than a covalent bond, is unsubstituted.

98. (Previously Presented) A compound according to claim 80, wherein Q¹ is independently a covalent bond.

99. (Previously Presented) A compound according to claim 80, wherein: Q¹ is independently a covalent bond; J¹ is independently a covalent bond; J² is independently -C(=O)-.

100. (Previously Presented) A compound according to claim 80, wherein: Q¹ is independently a covalent bond; J¹ is independently -C(=O)-; J² is independently -C(=O)-.

101. (Previously Presented) A compound according to claim 80, wherein: Q¹ is independently a covalent bond; J¹ is independently a covalent bond; J² is independently -S(=O)₂-.

102. (Previously Presented) A compound according to claim 80, wherein: Q¹ is independently a covalent bond; J¹ is independently -C(=O)-; J² is independently -S(=O)₂-.

103. (Previously Presented) A compound according to claim 80, wherein Q² is independently: C₄₋₈alkylene; and is optionally substituted; and has a backbone length of at least 4 atoms.

104. (Previously Presented) A compound according to claim 80, wherein Q² is independently a saturated aliphatic C₄₋₈alkylene group.

105. (Previously Presented) A compound according to claim 88, wherein Q² is independently a saturated aliphatic C₄₋₈alkylene group.

106. (Previously Presented) A compound according to claim 89, wherein Q² is independently a saturated aliphatic C₄₋₈alkylene group.

107. (Previously Presented) A compound according to claim 90, wherein Q² is independently a saturated aliphatic C₄₋₈alkylene group.

108. (Previously Presented) A compound according to claim 91, wherein Q² is independently a saturated aliphatic C₄₋₈alkylene group.

109. (Previously Presented) A compound according to claim 99, wherein Q² is independently a saturated aliphatic C₄₋₈alkylene group.

110. (Previously Presented) A compound according to claim 100, wherein Q^2 is independently a saturated aliphatic C_{4-8} alkylene group.

111. (Previously Presented) A compound according to claim 101, wherein Q^2 is independently a saturated aliphatic C_{4-8} alkylene group.

112. (Previously Presented) A compound according to claim 102, wherein Q^2 is independently a saturated aliphatic C_{4-8} alkylene group.

113. (Previously Presented) A compound according to claim 80, wherein Q^2 is independently a saturated linear C_{4-8} alkylene group.

114. (Previously Presented) A compound according to claim 80, wherein Q^2 is independently selected from: $-(CH_2)_5-$; $-(CH_2)_6-$; $-(CH_2)_7-$; $-(CH_2)_8-$; $-CH(CH_3)CH_2CH_2CH_2CH_2-$; $-CH_2CH_2CH_2CH_2CH(CH_3)-$; $-CH_2CH_2CH_2CH=CH-$; and, $-CH_2CH_2CH_2CH_2CH=CH-$.

115. (Previously Presented) A compound according to claim 80, wherein Q^2 is independently selected from: $-(CH_2)_5-$, $-(CH_2)_6-$, $-(CH_2)_7-$, and $-(CH_2)_8-$.

116. (Previously Presented) A compound according to claim 80, wherein Q^2 , is independently: C_{5-20} arylene- C_{1-7} alkylene; C_{1-7} alkylene- C_{5-20} arylene; C_{1-7} alkylene- C_{5-20} arylene- C_{1-7} alkylene; or, and is optionally substituted; and has a backbone length of at least 4 atoms.

Claim 117. (Canceled)

Claim 118. (Canceled)

119. (Previously Presented) A compound according to claim 80, wherein Q^2 , is independently: $C_{5-6}arylene-C_{1-7}alkylene$; $C_{1-7}alkylene-C_{5-6}arylene$; or, $C_{1-7}alkylene-C_{5-6}arylene-C_{1-7}alkylene$; and is optionally substituted; and has a backbone length of at least 4 atoms.

120. (Previously Presented) A compound according to claim 80, wherein Q^2 , is independently: $phenylene-C_{1-7}alkylene$; $C_{1-7}alkylene-phenylene$; or, $C_{1-7}alkylene-phenylene-C_{1-7}alkylene$; and is optionally substituted; and has a backbone length of at least 4 atoms.

121. (Previously Presented) A compound according to claim 80, wherein Q^2 , is independently: $methylene-phenylene$; $ethylene-phenylene$; $phenylene-methylene$; $phenylene-ethylene$; $phenylene-ethenylene$; $methylene-phenylene-methylene$; $methylene-phenylene-ethylene$; $methylene-phenylene-ethenylene$; $ethylene-phenylene-methylene$; $ethylene-phenylene-ethylene$; $ethylene-phenylene-ethenylene$; and is optionally substituted; and has a backbone length of at least 4 atoms.

122. (Previously Presented) A compound according to claim 88, wherein Q^2 , is independently: $methylene-phenylene$; $ethylene-phenylene$; $phenylene-methylene$; $phenylene-ethylene$; $phenylene-ethenylene$; $methylene-phenylene-methylene$; $methylene-phenylene-ethylene$; $methylene-phenylene-ethenylene$; $ethylene-phenylene-$

methylene; ethylene-phenylene-ethylene; ethylene-phenylene-ethynylene; and is optionally substituted; and has a backbone length of at least 4 atoms.

123. (Previously Presented) A compound according to claim 89, wherein Q^2 , is independently: methylene-phenylene; ethylene-phenylene; phenylene-methylene; phenylene-ethylene; phenylene-ethynylene; methylene-phenylene-methylene; methylene-phenylene-ethylene; methylene-phenylene-ethynylene; ethylene-phenylene-methylene; ethylene-phenylene-ethylene; ethylene-phenylene-ethynylene; and is optionally substituted; and has a backbone length of at least 4 atoms.

124. (Previously Presented) A compound according to claim 90, wherein Q^2 , is independently: methylene-phenylene; ethylene-phenylene; phenylene-methylene; phenylene-ethylene; phenylene-ethynylene; methylene-phenylene-methylene; methylene-phenylene-ethylene; methylene-phenylene-ethynylene; ethylene-phenylene-methylene; ethylene-phenylene-ethylene; ethylene-phenylene-ethynylene; and is optionally substituted; and has a backbone length of at least 4 atoms.

125. (Previously Presented) A compound according to claim 91, wherein Q^2 , is independently: methylene-phenylene; ethylene-phenylene; phenylene-methylene; phenylene-ethylene; phenylene-ethynylene; methylene-phenylene-methylene; methylene-phenylene-ethylene; methylene-phenylene-ethynylene; ethylene-phenylene-methylene; ethylene-phenylene-ethylene; ethylene-phenylene-ethynylene; and is optionally substituted; and has a backbone length of at least 4 atoms.

126. (Previously Presented) A compound according to claim 99, wherein Q^2 , is independently: methylene-phenylene; ethylene-phenylene; phenylene-methylene; phenylene-ethylene; phenylene-ethenylene; methylene-phenylene-methylene; methylene-phenylene-ethylene; methylene-phenylene-ethenylene; ethylene-phenylene-methylene; ethylene-phenylene-ethylene; ethylene-phenylene-ethenylene; and is optionally substituted; and has a backbone length of at least 4 atoms.

127. (Previously Presented) A compound according to claim 100, wherein Q^2 , is independently: methylene-phenylene; ethylene-phenylene; phenylene-methylene; phenylene-ethylene; phenylene-ethenylene; methylene-phenylene-methylene; methylene-phenylene-ethylene; methylene-phenylene-ethenylene; ethylene-phenylene-methylene; ethylene-phenylene-ethylene; ethylene-phenylene-ethenylene; and is optionally substituted; and has a backbone length of at least 4 atoms.

128. (Previously Presented) A compound according to claim 101, wherein Q^2 , is independently: methylene-phenylene; ethylene-phenylene; phenylene-methylene; phenylene-ethylene; phenylene-ethenylene; methylene-phenylene-methylene; methylene-phenylene-ethylene; methylene-phenylene-ethenylene; ethylene-phenylene-methylene; ethylene-phenylene-ethylene; ethylene-phenylene-ethenylene; and is optionally substituted; and has a backbone length of at least 4 atoms.

129. (Previously Presented) A compound according to claim 102, wherein Q^2 , is independently: methylene-phenylene; ethylene-phenylene; phenylene-methylene; phenylene-ethylene; phenylene-ethenylene; methylene-phenylene-methylene;

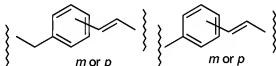
methylene-phenylene- ethylene; methylene-phenylene-ethenylene; ethylene-phenylene-
methylene; ethylene-phenylene-ethylene; ethylene-phenylene-ethenylene; and is
optionally substituted; and has a backbone length of at least 4 atoms.

130. (Previously Presented) A compound according to claim 120, wherein the
phenylene linkage is meta or para.

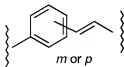
131. (Previously Presented) A compound according to claim 120, wherein the
phenylene linkage is meta.

132. (Previously Presented) A compound according to claim 120, wherein the
phenylene linkage is para.

133. (Previously Presented) A compound according to claim 80, wherein Q^2 , is
independently:



134. (Previously Presented) A compound according to claim 80, wherein Q^2 , is
independently:



135. (Previously Presented) A compound according to claim 80, wherein Q² is substituted.

136. (Previously Presented) A compound according to claim 80, wherein substituents on Q², if present, are independently selected from: (1) ester; (2) amido; (3) acyl; (4) halo; (5) hydroxy; (6) ether; (7) substituted or unsubstituted C₁₋₇alkyl; (8) substituted or unsubstituted C₅₋₂₀aryl; (9) sulfonyl; (10) sulfonamido; (11) amino; (12) morpholino; (13) nitro; and (14) cyano.

137. (Previously Presented) A compound according to claim 80, wherein substituents on Q², if present, are independently selected from:

(1) -C(=O)OMe, -C(=O)OEt, -C(=O)OPr, -C(=O)OiPr, -C(=O)OnBu, -C(=O)OsBu, -C(=O)OiBu, -C(=O)OtBu, -C(=O)OnPe; -C(=O)OCH₂CH₂OH, -C(=O)OCH₂CH₂OMe, -C(=O)OCH₂CH₂OEt;

(2) -(C=O)NH₂, -(C=O)NMe₂, -(C=O)NEt₂, -(C=O)N(iPr)₂, -(C=O)N(CH₂CH₂OH)₂;

(3) -(C=O)Me, -(C=O)Et, -(C=O)-cHex, -(C=O)Ph;

(4) -F, -Cl, -Br, -I;

(5) -OH;

(6) -OMe, -OEt, -O(iPr), -O(tBu), -OPh; -OCF₃, -OCH₂CF₃; -OCH₂CH₂OH, -OCH₂CH₂OMe, -OCH₂CH₂OEt; -OCH₂CH₂NH₂, -OCH₂CH₂NMe₂, -OCH₂CH₂N(iPr)₂; -OPh, -OPh-Me, -OPh-OH, -OPh-OMe, O-Ph-F, -OPh-Cl, -OPh-Br, -OPh-I;

(7) -Me, -Et, -nPr, -iPr, -nBu, -iBu, -sBu, -tBu, -nPe; -CF₃, -CH₂CF₃; -CH₂CH₂OH, -CH₂CH₂OMe, -CH₂CH₂OEt; -CH₂CH₂NH₂, -CH₂CH₂NMe₂, -CH₂CH₂N(iPr)₂; -CH₂-Ph;

(8) -Ph, -Ph-Me, -Ph-OH, -Ph-OMe, -Ph-F, -Ph-Cl, -Ph-Br, -Ph-I;

(9) -SO₂Me, -SO₂Et, -SO₂Ph;

(10) -SO₂NH₂, -SO₂NMe₂, -SO₂NEt₂;

(11) -NMe₂, -NEt₂;

(12) morpholino;

(13) -NO₂; and

(14) -CN.

138. (Previously Presented) A compound according to claim 80, wherein Q² is unsubstituted.

139. (Previously Presented) A compound according to claim 80, wherein Q² has a backbone of at least 5 atoms.

140. (Previously Presented) A compound according to claim 80, wherein Q² has a backbone of at least 6 atoms.

141. (Previously Presented) A compound according to claim 80, wherein Cy is independently C₃₋₂₀carbocyclyl; and is optionally substituted.

142. (Previously Presented) A compound according to claim 80, wherein Cy is independently C₃₋₂₀carbocyclyl derived from one of the following: cyclopropane, cyclobutane, cyclopentane, cyclohexane, cyclopentene, cyclohexene, norbomane, adamantane, cyclopentanone, and cyclohexanone; and is optionally substituted.

143. (Previously Presented) A compound according to claim 80, wherein Cy is independently C₃₋₂₀heterocyclyl; and is optionally substituted.

144. (Previously Presented) A compound according to claim 80, wherein Cy is independently C₃₋₂₀heterocyclyl derived from one of the following: piperidine, azepine, tetrahydropyran, morpholine, azetidine, piperazine, imidazoline, piperazinedione, and oxazolinone; and is optionally substituted.

145. (Previously Presented) A compound according to claim 80, wherein Cy is independently C₅₋₂₀aryl; and is optionally substituted.

146. (Previously Presented) A compound according to claim 80, wherein Cy is independently C₅₋₂₀carboaryl or C₅₋₂₀heteroaryl; and is optionally substituted.

147. (Previously Presented) A compound according to claim 105, wherein Cy is independently C₅₋₂₀carboaryl or C₅₋₂₀heteroaryl; and is optionally substituted.

148. (Previously Presented) A compound according to claim 106, wherein Cy is independently C₅₋₂₀carboaryl or C₅₋₂₀heteroaryl; and is optionally substituted.

149. (Previously Presented) A compound according to claim 107, wherein Cy is independently C₅₋₂₀carboaryl or C₅₋₂₀heteroaryl; and is optionally substituted.

150. (Previously Presented) A compound according to claim 108, wherein Cy is independently C₅₋₂₀carboaryl or C₅₋₂₀heteroaryl; and is optionally substituted.

151. (Previously Presented) A compound according to claim 109, wherein Cy is independently C₅₋₂₀carboaryl or C₅₋₂₀heteroaryl; and is optionally substituted.

152. (Previously Presented) A compound according to claim 110, wherein Cy is independently C₅₋₂₀carboaryl or C₅₋₂₀heteroaryl; and is optionally substituted.

153. (Previously Presented) A compound according to claim 111, wherein Cy is independently C₅₋₂₀carboaryl or C₅₋₂₀heteroaryl; and is optionally substituted.

154. (Previously Presented) A compound according to claim 112, wherein Cy is independently C₅₋₂₀carboaryl or C₅₋₂₀heteroaryl; and is optionally substituted.

155. (Previously Presented) A compound according to claim 122, wherein Cy is independently C₅₋₂₀carboaryl or C₅₋₂₀heteroaryl; and is optionally substituted.

156. (Previously Presented) A compound according to claim 123, wherein Cy is independently C₅₋₂₀carboaryl or C₅₋₂₀heteroaryl; and is optionally substituted.

157. (Previously Presented) A compound according to claim 124, wherein Cy is independently C₅₋₂₀carboaryl or C₅₋₂₀heteroaryl; and is optionally substituted.

158. (Previously Presented) A compound according to claim 125, wherein Cy is independently C₅₋₂₀carboaryl or C₅₋₂₀heteroaryl; and is optionally substituted.

159. (Previously Presented) A compound according to claim 126, wherein Cy is independently C₅₋₂₀carboaryl or C₅₋₂₀heteroaryl; and is optionally substituted.

160. (Previously Presented) A compound according to claim 127, wherein Cy is independently C₅₋₂₀carboaryl or C₅₋₂₀heteroaryl; and is optionally substituted.

161. (Previously Presented) A compound according to claim 128, wherein Cy is independently C₅₋₂₀carboaryl or C₅₋₂₀heteroaryl; and is optionally substituted.

162. (Previously Presented) A compound according to claim 129, wherein Cy is independently C₅₋₂₀carboaryl or C₅₋₂₀heteroaryl; and is optionally substituted.

163. (Previously Presented) A compound according to claim 80, wherein Cy is independently C₅₋₂₀aryl derived from one of the following: benzene, pyridine, furan, indole, pyrrole, imidazole, pyrimidine, pyrazine, pyridazine, naphthalene, quinoline, indole, benzimidazole, benzothiofuran, fluorene, acridine, and carbazole; and is optionally substituted.

164. (Previously Presented) A compound according to claim 80, wherein Cy is independently an optionally substituted phenyl group.

165. (Previously Presented) A compound according to claim 80, wherein Cy is optionally substituted with one or more substituents selected from:

- (1) ester;
- (2) amido;
- (3) acyl;
- (4) halo;
- (5) hydroxy;
- (6) ether;
- (7) substituted or unsubstituted C₁₋₇alkyl;
- (8) substituted or unsubstituted C₅₋₂₀aryl;
- (9) sulfonyl;
- (10) sulfonamido;
- (11) amino;
- (12) morpholino;
- (13) nitro; and
- (14) cyano.

166. (Previously Presented) A compound according to claim 80, wherein Cy is optionally substituted with one or more substituents selected from:

(1) -C(=O)OMe, -C(=O)OEt, -C(=O)OPr, -C(=O)OiPr, -C(=O)OnBu, -C(=O)OsBu, -C(=O)OiBu, -C(=O)OtBu, -C(=O)OnPe; -C(=O)OCH₂CH₂OH, -C(=O)OCH₂CH₂OMe, -C(=O)OCH₂CH₂OEt;

(2) -C(=O)NH₂, -C(=O)NMe₂, -C(=O)NEt₂, -C(=O)N(iPr)₂, -C(=O)N(CH₂CH₂OH)₂;

(3) -C(=O)Me, -C(=O)Et, -C(=O)-cHex, -C(=O)Ph;

(4) -F, -Cl, -Br, -I;

(5) -OH;

(6) -OMe, -OEt, -O(iPr), -O(tBu), -OPh; -OCF₃, -OCH₂CF₃; -OCH₂CH₂OH, -OCH₂CH₂OMe, -OCH₂CH₂OEt; -OCH₂CH₂NH₂, -OCH₂CH₂NMe₂, -OCH₂CH₂N(iPr)₂; -OPh, -OPh-Me, -OPh-OH, -OPh-OMe, O-Ph-F, -OPh-Cl, -OPh-Br, -OPh-I;

(7) -Me, -Et, -nPr, -iPr, -nBu, -iBu, -sBu, -tBu, -nPe; -CF₃, -CH₂CF₃; -CH₂CH₂OH, -CH₂CH₂OMe, -CH₂CH₂OEt; -CH₂CH₂NH₂, -CH₂CH₂NMe₂, -CH₂CH₂N(iPr)₂; -CH₂-Ph;

(8) -Ph, -Ph-Me, -Ph-OH, -Ph-OMe, -Ph-F, -Ph-Cl, -Ph-Br, -Ph-I;

(9) -SO₂Me, -SO₂Et, -SO₂Ph;

(10) -SO₂NH₂, -SO₂NMe₂, -SO₂NEt₂;

(11) -NMe₂, -NEt₂;

(12) morpholino;

(13) -NO₂; and

(14) -CN.

167. (Currently Amended) A compound according to claim 80, selected from the following compounds, and pharmaceutically acceptable salts, solvates, amides, esters, and ethers thereof:

